that 15 rounds to 20.

- Replace the numbers on the number line with the numbers 100–200 in intervals of 10.
- Repeat the process above.

	D	E	F
1	8 × 835	4 × 541	5 × 765
2	9 × 760	4 × 475	5 × 810
3	8 × 875	4 × 680	6 × 525
4	9 × 828	5 × 446	8 × 497

Make up a "Think Together" question for this lesson. Challenge your classmates to think together to answer your question.

Center Activity ★

1. Ask a question. To answer your question, group members should estimate a product.
2. Ask a second question. To answer your question, group members should estimate a different product.
3. Ask a third question. To answer your question, group members should estimate a different product.
4. Ask a fourth question. To answer your question, group members should estimate a different product.

About how many stairs do you climb in one day? One week? One month?

Center Activity ★★

Partner Talk Listen for the word "about." For example, a student should ask, "About how many stairs does Tom climb in three weeks?" not "How many stairs does Tom climb in three weeks?"

Leveled Homework

Reteaching Master

Name _____ Reteaching 5-5

Using Rounding to Estimate

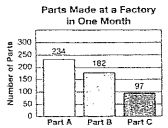
You can use rounding to estimate products.

Use rounding to estimate 7 × 28.
First, round 28 to the nearest ten. 28 rounds to 30.
Then, multiply. 7 × 30 = 210
So, 7 × 28 is about 210.

Use rounding to estimate 7 × 215.
First, round 215 to the nearest hundred. 215 rounds to 200.
Then, multiply. 7 × 200 = 1,400
So, 7 × 215 is about 1,400.

Estimate each product.

1. 6 × 88 is close to 6 × 90; 540
2. 279 × 4 is close to 300; 1,200 × 4
3. 7 × 31 210
4. 38 × 5 200
5. 21 × 6 120
6. 3 × 473 1,500
7. 5 × 790 4,000
8. 488 × 6 3,000
9. **Number Sense** Estimate to determine if 5 × 68 is greater than or less than 350. Tell how you decided.
   Less than; 5 × 70 = 350, so 5 × 68 must be less than 350.
10. Estimate how many of Part C would be made in 4 months.
    About 400 parts
11. Estimate how many of Part B would be made in 3 months.
    About 600 parts
12. Estimate how many of Part A would be made in 9 months.
    About 1,800 parts



Also available in print

Practice Master

Name _____ Practice 5-5

Using Rounding to Estimate

Estimate each product. Sample answers given for 1–12.

1. 38 × 2 80
2. 7 × 47 350
3. 54 × 6 300
4. 121 × 2 200
5. 578 × 8 4,800
6. 823 × 3 2,400
7. 7 × 289 2,100
8. 183 × 4 800
9. 2 × 87 180
10. 673 × 8 5,600

The distance between Bill's house and his aunt's house is 835 miles.

11. About how many miles would he drive if he made 4 one-way trips?
    About 3,200 miles
12. About how many miles would he drive if he made 9 one-way trips?
    About 7,200 miles
13. Vera has 8 boxes of paper clips. Each box contains 275 paper clips. About how many paper clips does Vera have?
    A 240 B 1,600 (C) 2,400 D 24,000
14. **Writing to Explain** A large 7-story office building has 116 windows on each floor. About how many windows does the building have in all? Explain.
    About 700 windows; 116 rounds to 100 and 7 × 100 = 700.

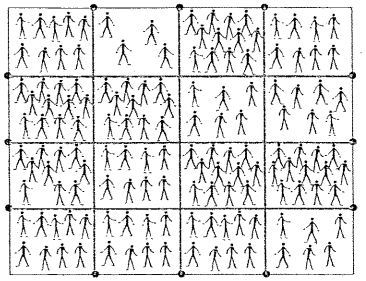
Also available in print

Enrichment Master

Name _____ Enrichment 5-5

Who's Here?

Do you know how to find the attendance of people at a large event? There are too many people to count one by one, so you need to estimate. This is called crowd estimation.

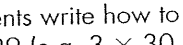


1. Draw 3 lines top to bottom by connecting dot to dot. Draw 3 lines going across by connecting dot to dot. Find the box that is farthest left and on the bottom. Count as many people in the box as you can.
   9 people
2. Estimate to find the total number of people.
   Sample answer:
   number of people × number of boxes = total number of people
   9 × 16 = 144 people

Also available in print

- Once they have determined ... is not reasonable, discuss how an estimate could be used to check if an answer is reasonable.
- Have the students write how to estimate 3×29 (e.g. $3 \times 30 = 90$).
- Explain how the answer is not close to the estimate, so the answer is not reasonable.
- Give other examples for more practice.

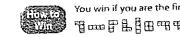
800	300	360	800
350	450	180	400
80	400	240	350

How to Win: You win if you are the first to get four connected rectangles, like: 

Free Space Marker: Play again!

Center Activity ★ 56

each of 10 tanks	each of 5 barrels	each of 9 boxes	each of 6 boxes
49 stickers in each of 4 envelopes	47 balls in each of 8 bags	93 marbles in each of 2 jars	9 sandwiches in each of 18 boxes
28 apples in each of 3 baskets	33 seashells in each of 2 bags	38 windows in each of 4 stories	34 tables in each of 5 rooms

How to Win: You win if you are the first to get four connected rectangles, like: 

Free Space Marker: Play again!

Center Activity ★★ 56

ELL **Partner Talk** Listen for evidence of number sense. For example, a student might say, "There are five numbers and each one is close to 22. Twenty-two is close to 20. So a reasonable estimate is $5 \times 20 = 100$."

Leveled Homework

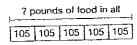
Reteaching Master

Name _____ Reteaching 5-6

Problem Solving: Reasonableness

After you solve a problem, it is important to check your answer to see whether it is reasonable.

Read and Understand There are 5 animals on a farm. Each animal eats 105 pounds of food per week. How much food does the farmer have to buy each week?



Plan and Solve Use breaking apart or compensation to find 5×105.
$5 \times 105 = 525$

Check for Reasonableness First, ask yourself, "Did I answer the right question?" Then, estimate to check your answer. $5 \times 100 = 500$. The answer is reasonable because 500 is close to 525.

Solve the following problems. Check your answers for reasonableness.

1. Marisa says $302 \times 6 = 192$.
Explain why Marisa's answer is not reasonable.
Sample answer: $300 \times 6 = 1{,}800$; this estimate is not close to 192, so Marisa's answer is not reasonable.

2. Jaime practiced swimming for about 11 hours every week for 8 weeks. About how many hours did he practice in all? How can you check your answer?
88 hours; I can check my answer by estimating. $10 \times 8 = 80$; 80 is close to 88, so my answer is reasonable.

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Also available in print

Practice Master

Name _____ Practice 5-6

Problem Solving: Reasonableness

For 1 and 2, use reasonableness to decide if each answer is correct. Explain why the answer is reasonable or not. If the answer is incorrect, give the correct answer.

1. Johan is selling baseball cards for 12¢ each. He is selling 8 cards and says he'll make $8.
Sample answer: $10¢ \times 8 = 80¢$; this estimate is not close to $8. So Johan's answer is not reasonable. Johan will make 96¢.

2. Erika wants to give 5 stickers to everyone in her class. Her class sits in 4 rows of 7, and Erika says she'll need 140 stickers.
Sample answer: $4 \times 7 = 28$ and 28 rounds to 30. There are about 30 students in the class. $30 \times 5 = 150$; this estimate is close to 140, so Erika's answer is reasonable.

3. Viktor has 7 piles of coins with 63 coins in each. Which is a reasonable number of coins in Viktor's piles?
A 300, because 7×63 is about $7 \times 40 = 280$.
B 360, because 7×63 is about $7 \times 50 = 350$.
(C) 441, because 7×63 is about $7 \times 60 = 420$.
D 500, because 7×63 is about $7 \times 70 = 490$.

Julie planted a sunflower and kept track of its height in a table. Use the table to solve 4 and 5.

Height of Sunflower	
Week	Height in Inches
1	16
2	32
3	48
4	64
5	

4. How tall will the sunflower be after the 5th week if it continues to grow at the same rate?
80 inches

5. **Writing to Explain** The world's largest sunflower was about 300 inches tall. Julie says her sunflower will be that tall after 3 months. Is Julie's answer reasonable? Explain why or why not. (Remember, there are about 4 weeks in one month.)
It is not reasonable. Sample answer: In 1 month the plant grew 64 inches. So, after 3 months the plant will grow about $60 \times 3 = 180$ inches. 180 is not close to 300.

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Also available in print

Enrichment Master

Name _____ Enrichment 5-6

Jump to Score

In a jump rope contest at the Roosevelt School, the girls who are jumping get two turns in each game. Each girl wants to make a certain number of jumps on her second turn in order to meet her own personal goal. Finish each table to show how many more jumps each girl needs to make.

1. Beatriz wants to make 300 jumps.

Game	Jumps Made in First Turn	Jumps Still Needed in Second Turn
1	156	144
2	159	141
3	148	152
4	164	136

2. Gloria wants to make 350 jumps.

Game	Jumps Made in First Turn	Jumps Still Needed in Second Turn
1	215	135
2	183	167
3	175	175
4	198	152

3. Larissa wants to make 400 jumps.

Game	Jumps Made in First Turn	Jumps Still Needed in Second Turn
1	221	179
2	218	182
3	175	225
4	234	166

4. Heidi wants to make 436 jumps.

Game	Jumps Made in First Turn	Jumps Still Needed in Second Turn
1	270	166
2	245	191
3	218	218
4	212	224

5. Which girl has to make the most jumps on her second turn to meet her personal goal in Game 4? Heidi

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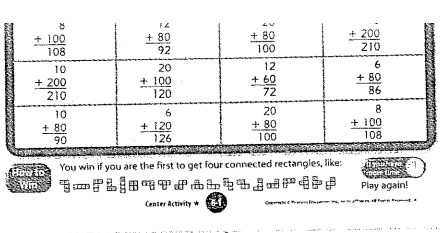
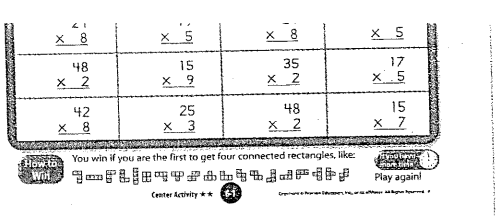
Also available in print

- Remind students that 5 rows of 2 tens blocks represents 10 groups of ten.
- To the right of the line, show 5 rows of 3 ones blocks.
- Repeat for 2 × 16. Separate the tens and the ones blocks.

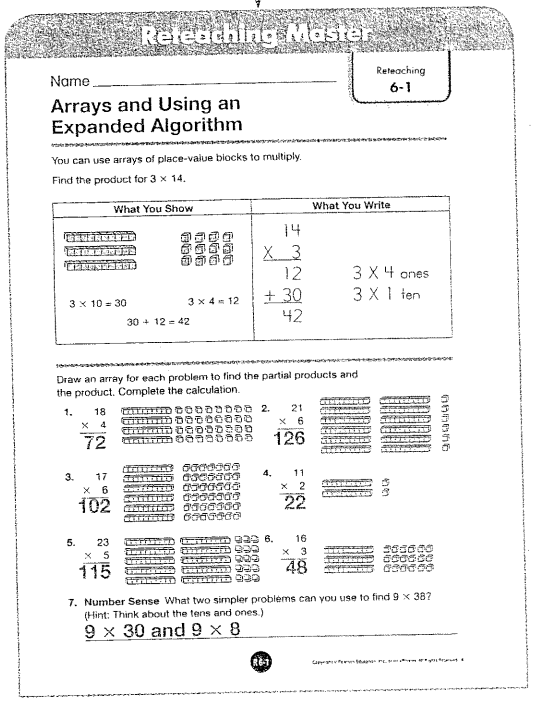




ELL Report Back To check understanding, ask a student to repeat and complete this sentence: *After we multiply to find the partial products, the next step is to* _____. [add the partial products to find the product]

Leveled Homework

Reteaching Master



Name _____ Reteaching 6-1

Arrays and Using an Expanded Algorithm

You can use arrays of place-value blocks to multiply.

Find the product for 3 × 14.

What You Show	What You Write
3 × 10 = 30	14 × 3
3 × 4 = 12	12 (3 × 4 ones)
30 + 12 = 42	+ 30 (3 × 1 ten)
	42

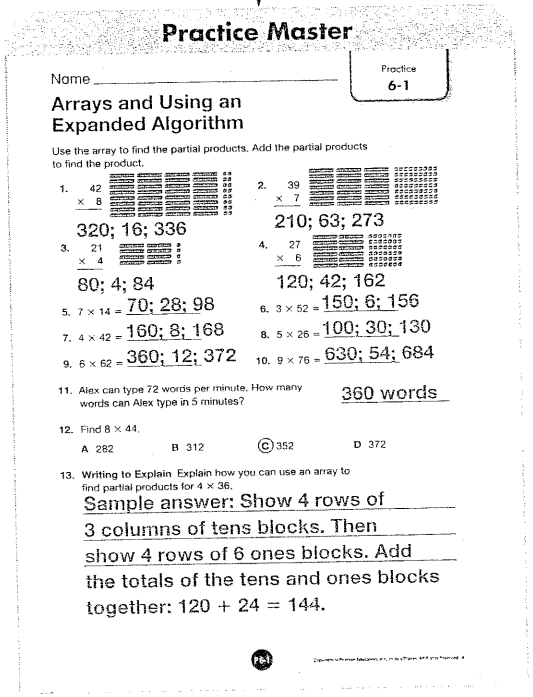
Draw an array for each problem to find the partial products and the product. Complete the calculation.

1. 18 × 4 = 72
2. 21 × 6 = 126
3. 17 × 6 = 102
4. 11 × 2 = 22
5. 23 × 5 = 115
6. 16 × 3 = 48

7. **Number Sense** What two simpler problems can you use to find 9 × 38? (Hint: Think about the tens and ones.)
   9 × 30 and 9 × 8

Also available in print

Practice Master



Name _____ Practice 6-1

Arrays and Using an Expanded Algorithm

Use the array to find the partial products. Add the partial products to find the product.

1. 42 × 8 = 320; 16; 336
2. 39 × 7 = 210; 63; 273
3. 21 × 4 = 80; 4; 84
4. 27 × 6 = 120; 42; 162
5. 7 × 14 = 70; 28; 98
6. 3 × 52 = 150; 6; 156
7. 4 × 42 = 160; 8; 168
8. 5 × 26 = 100; 30; 130
9. 6 × 62 = 360; 12; 372
10. 9 × 76 = 630; 54; 684

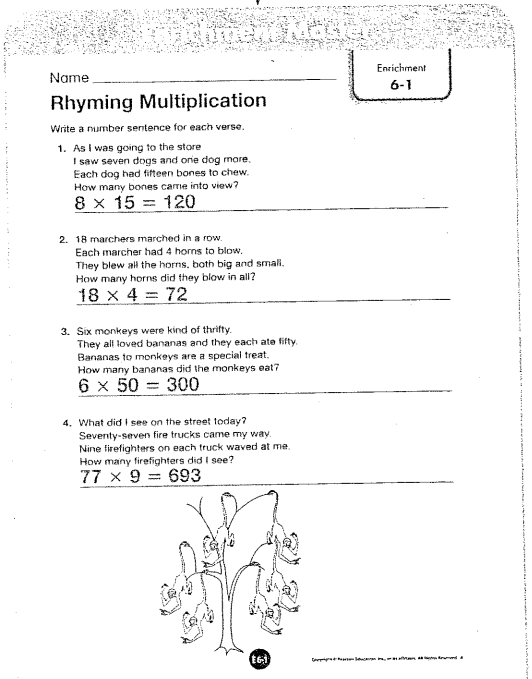
11. Alex can type 72 words per minute. How many words can Alex type in 5 minutes?
    360 words

12. Find 8 × 44.
    A 282 B 312 C 352 D 372

13. **Writing to Explain** Explain how you can use an array to find partial products for 4 × 36.
    Sample answer: Show 4 rows of 3 columns of tens blocks. Then show 4 rows of 6 ones blocks. Add the totals of the tens and ones blocks together: 120 + 24 = 144.

Also available in print

Enrichment Master



Name _____ Enrichment 6-1

Rhyming Multiplication

Write a number sentence for each verse.

1. As I was going to the store
   I saw seven dogs and one dog more.
   Each dog had fifteen bones to chew.
   How many bones came into view?
   8 × 15 = 120

2. 18 marchers marched in a row.
   Each marcher had 4 horns to blow.
   They blew all the horns, both big and small.
   How many horns did they blow in all?
   18 × 4 = 72

3. Six monkeys were kind of thrifty.
   They all loved bananas and they each ate fifty.
   Bananas to monkeys are a special treat.
   How many bananas did the monkeys eat?
   6 × 50 = 300

4. What did I see on the street today?
   Seventy-seven fire trucks came my way.
   Nine firefighters on each truck waved at me.
   How many firefighters did I see?
   77 × 9 = 693

Also available in print

students say the computation aloud for multiplying the ones: 4 × 6 ones = 24 ones. Then have them write the partial product 24.

- Have students say the computation aloud for multiplying the tens: 4 × 1 ten = 4 tens and tell how to write 4 tens. Then have them write the partial product 40.
- Have students add the partial products and give the sum: 64.
- Repeat for 6 × 15.

87	96	104	142	144
56	112	210	99	84

Choose your own factors for multiplying a 2-digit number by a 1-digit number. Challenge your team members to use either the standard algorithm or the expanded algorithm to find the product.

Center Activity 4 6-2

365	413	416	235	567

Choose your own factors for multiplying a 2-digit number by a 1-digit number. Challenge your team member to use either the standard algorithm or the expanded algorithm to find the product.

Center Activity ★★ 6-2

ELL Partner Talk Listen for evidence that a student understands place value when multiplying. For example, a student might say, "4 times 2 tens is the same as 4 times 20 which is 80."

Leveled Homework

Reteaching Master

Name _____ Reteaching 6-2

Connecting the Expanded and Standard Algorithms

There are different ways to find the product for 3 × 45.

Expanded Algorithm	Standard Algorithm
Find the partial products. 45 × 3 15 + 120 135	1 45 × 3 135 — Multiply ones. 3 × 5 ones = 15 ones. Regroup if needed. 15 ones = 1 ten 5 ones. Multiply tens. 3 × 4 tens = 12 tens. Add any extra tens. 12 + 1 = 13 tens. Write 13 tens as 1 hundred 3 tens.

Solve.

1. **Draw a Picture** Find 4 × 35 using the expanded algorithm and then the standard algorithm.
   140; Check students' work.
2. At his job, Mr. Miller works 7 hours a day, Monday through Friday. How many hours does he work in 2 weeks?
   2 × 35 = 70 hours
3. **Think About the Process** Write the multiplication problem that matches the picture below. Then use the standard algorithm to find the product.
   5 × 28 = 140; Check students' work.
4. **Writing to Explain** Stella used the expanded algorithm to find the product for 9 × 39. Her work is shown below. Is she correct? Explain.

   39 × 9 270 + 81 351

   Sample answer: Yes, Stella multiplied the tens first and then the ones to add the partial products and find the final product.

6-2

Also available in print

Practice Master

Name _____ Practice 6-2

Connecting the Expanded and Standard Algorithms

For 1 through 4, use the expanded algorithm to multiply.

1. 83 × 4 → 12 partial product + 320 partial product = 332 product
2. 57 × 6 → 42 partial product + 300 partial product = 342 product
3. 19 × 8 → 72 + 80 = 152
4. 42 × 9 → 18 + 360 = 378

For 5 through 10, use the standard algorithm to multiply.

5. 75 × 6 = 450
6. 64 × 5 = 320
7. 17 × 9 = 153
8. 93 × 4 = 372
9. 28 × 7 = 196
10. 56 × 8 = 448

11. A commuter van has 38 seats and 14 windows. How many windows are in 6 commuter vans?
    A 70 (B) 84 C 102 D 228
12. **Writing to Explain** Suppose you had to find 4 × 57. How are the expanded algorithm and the standard algorithm alike? How are they different?
    Sample answer: Both give the same product, 228. The expanded algorithm lists each partial product. The standard algorithm combines partial products as you go.

6-2

Also available in print

Enrichment Master

Name _____ Enrichment 6-2

Multiply Without a Pencil

You know different methods you can use to find products.
Try to solve the problems below in your head.
If you find the solution mentally, circle MM for *mental math*.
If you need to write out the solution, circle PP for *paper and pencil*.

1. Fred drove on Interstate 95 for 4 hours. He went 55 miles an hour the whole time. How many miles did he drive?
   220 miles — MM or PP
2. Celie read 6 chapters of a mystery on Saturday. Each chapter had 25 pages. How many pages did Celie read that day?
   150 pages — MM or PP
3. Darius practiced his guitar 15 minutes a day for 7 days. How many minutes did Darius spend practicing guitar that week?
   105 minutes — MM or PP
4. A baker makes 72 cookies per batch. At that rate, how many cookies would the baker make in 3 batches?
   216 cookies — MM or PP
5. Eleni does 40 sit-ups every morning before she gets ready for school. How many sit-ups will Eleni do in 5 days?
   200 sit-ups — MM or PP
6. A large bag of dry dog food weighs 30 pounds. What is the total weight of 4 large bags of dry dog food?
   120 pounds — MM or PP
7. A bag of gravel weighs 45 pounds. What is the total weight of 4 bags of gravel?
   180 pounds — MM or PP
8. A crate of melons weighs 50 pounds. What is the total weight of 5 crates of melons?
   250 pounds — MM or PP
9. There are 52 cards in a standard deck of playing cards. How many cards would be in 6 standard decks?
   312 cards — MM or PP
10. A piano has 88 keys. Some are white and some are black. How many keys would there be on 5 pianos?
    440 keys — MM or PP
11. Which problems were easiest to solve in your head? Which ones were harder for you to do mentally? Explain.
    Answers will vary.

6-2

Also available in print

and place the 1 tens block above the other tens blocks. Guide them to record 8 in the ones place of the product and 1 regrouped ten above the 2 tens in 26.

- Have students multiply to find 3 rows of 2 tens blocks each and add the 1 regrouped ten. Guide them to record 7 in the tens place of the product.
- Repeat for 4 × 17.

161	315	245	378	455	175
385	77	168	427	91	392
238	308	112	217	462	231

Play again!

Center Activity ★ 63

154	486	366	168	252	322
352	77	182	84	504	344
264	585	105	468	272	567

Play again!

Center Activity ★★ 63

Partner Talk Listen for the phrase **extra tens**. For example, a student might say, "7 times 6 ones is 42, so I will have to add 4 **extra tens** after I multiply the tens."

Leveled Homework

Reteaching Master

Name _____ Reteaching 6-3

Multiplying 2-Digit by 1-Digit Numbers

Here is how to multiply a 2-digit number by a 1-digit number using paper and pencil.

Find 3 × 24.

	What You Think	What You Write
Step 1 Multiply the ones. Regroup if necessary.	3 × 4 = 12 ones Regroup 12 ones as 1 ten 2 ones.	1 24 × 3 2
Step 2 Multiply the tens. Add any extra tens.	3 × 2 tens = 6 tens 6 tens + 1 ten = 7 tens	1 24 × 3 72

Is your answer reasonable?
Exact answer: 3 × 24 = 72
Think: 24 is close to 25.
Estimate: 3 × 25 = 75 Since 72 is close to 75, the answer is reasonable.

Find each product. Estimate to check reasonableness.

1. 13 × 3 = 39
2. 17 × 7 = 119
3. 24 × 5 = 120
4. 48 × 8 = 384
5. 62 × 6 = 372
6. 36 × 5 = 180
7. 88 × 5 = 440
8. 52 × 8 = 416

9. **Estimation** Use estimation to decide which has the greater product: 81 × 6 or 79 × 5. 81 × 6

63

Also available in print

Practice Master

Name _____ Practice 6-3

Multiplying 2-Digit by 1-Digit Numbers

Find each product. Estimate to check reasonableness.

1. 19 × 4 = 76
2. 23 × 7 = 161
3. 51 × 6 = 306
4. 39 × 7 = 273
5. 48 × 5 = 240
6. 53 × 7 = 371
7. 29 × 8 = 232
8. 42 × 6 = 252
9. 89 × 8 = 712
10. 77 × 9 = 693
11. 94 × 4 = 376

12. **Number Sense** Penny says that 4 × 65 = 260. Estimate to check Penny's answer. Is she right? Explain.
Sample answer: 4 × 70 = 280. Penny is right because 260 is close to 280.

13. A large dump truck uses about 18 gallons of fuel for 1 hour of work. About how many gallons of fuel are needed if the truck works for 5 hours? About 90 gallons

14. Which of the following is a reasonable estimate for 6 × 82?
A 48 (B) 480 C 540 D 550

15. **Writing to Explain** Tyrone has 6 times as many marbles as his sister Pam. Pam has 34 marbles. Louis has 202 marbles. Who has more marbles, Tyrone or Louis? Explain how you found your answer.
Tyrone; Sample answer: 34 × 6 = 204. Tyrone has 204 marbles. 204 > 202, so Tyrone has more marbles than Louis.

P63

Also available in print

Enrichment Master

Name _____ Enrichment 6-3

Mathematical Marlena

Marlena is about to amaze you with great feats of mathematics.
Marlena says, "I want you to write the number 37 three times."

1. Now she says, "Multiply the first 37 by 1." 37 × 1 = 37
2. Then she tells you, "Multiply the second 37 by 2." 37 × 2 = 74
3. She directs you to "Multiply the third 37 by 3." 37 × 3 = 111
4. She says, "Take each product and multiply it by 3." 37 × 3 = 111, 74 × 3 = 222, and 111 × 3 = 333
5. Marlena now asks, "What is the pattern if you continue to multiply 3 times the product of 37 and the next number in sequence?" The pattern is 444, 555, 666, 777, 888, 999 when you multiply the product of 37 and the next number by 3.

Then Marlena begins her second math game. Sample answers for the number 2:

6. She tells you, "Write a number between 1 and 5." 2
7. Then she says, "Now add 5 to the number." 7
8. Now she says, "Multiply the number by 2." 14
9. She says, "Subtract 2 from the product." 12
10. Marlena then says, "Now multiply that answer by 2." 24
11. Then she asks you to "Divide the product by 4." 6
12. She finally directs you to "Subtract 4 from your answer." 2

Marlena says, "The answer is the number you wrote down!"

E63

Also available in print

value blocks.

- As groups model and regroup the place-value blocks, assign one person in each group the responsibility to record each step using different colors for each place value.
- Count the ones in the problem and ask how these can be regrouped.
- Count the tens and the hundreds and regroup as needed.

c. 6 × 412 d. 5 × 237

e. 9 × 348 f. 8 × 650

Choose any other 1-digit and 3-digit numbers. Pick tiles again. Follow steps 1 – 4 for your numbers.

Center Activity ★ E4

× □

Give examples to explain why someone might need to multiply two numbers like these.

Center Activity ★★ E4

ELL Report Back Ask a student to repeat and complete this sentence: *After we find a product we estimate to* _____. [check for reasonableness]

Leveled Homework

Reteaching Master

Name _____ Reteaching 6-4

Multiplying 3- and 4-Digit by 1-Digit Numbers

The steps below show how to multiply greater numbers.

	Example A	Example B
Step 1 Multiply the ones. Regroup if necessary.	1 154 × 4 6	2 1,214 × 7 8
Step 2 Multiply the tens. Add any extra tens. Regroup if necessary.	21 154 × 4 16	2 1,214 × 7 98
Step 3 Multiply the hundreds. Add any extra hundreds.	21 154 × 4 616	1 2 1,214 × 7 498
Step 4 Multiply the thousands. Add any extra thousands.		1 2 1,214 × 7 8,498

Find each product. Estimate to check reasonableness.

1. 185 × 4 = 740
2. 517 × 4 = 2,068
3. 2,741 × 3 = 8,223
4. 413 × 6 = 2,478
5. 2,625 × 6 = 15,750
6. 812 × 5 = 4,060
7. 3,711 × 8 = 29,688
8. 1,381 × 5 = 6,905

9. Molly and her sister each have 118 shells. How many shells do they have all together?
   236 shells
10. A factory can make 2,418 footballs in 1 week. How many can it make in 9 weeks?
    21,762 footballs

R64

Also available in print

Practice Master

Name _____ Practice 6-4

Multiplying 3- and 4-Digit by 1-Digit Numbers

Find each product. Estimate to check reasonableness.

1. 352 × 3 = 1,056
2. 2,768 × 7 = 19,376
3. 482 × 8 = 3,856
4. 3,521 × 4 = 14,084
5. 4,219 × 6 = 25,314
6. 385 × 4 = 1,540
7. 632 × 5 = 3,160
8. 1,848 × 9 = 16,632
9. 7 × 2,117 = 14,819
10. 6 × 517 = 3,102

For 11 and 12, use the table at the right.

Runs Scored in 2010

Player	Runs Scored
A	128
B	113
C	142

11. If Player A scores the same number of runs each season, how many runs will he score in 5 seasons?
    640 runs
12. If Player C scores the same number of runs each season, how many runs will he score in 8 seasons?
    1,136 runs
13. How many bottles of water would Tim sell if he sold 1,734 bottles each week for 4 weeks?
    A 5,886 B 6,836 C 6,928 (D) 6,936
14. If you know that 8 × 300 = 2,400, how can you find 8 × 320? Explain.
    Sample answer: You can add 8 × 20 to 2,400. 8 × 20 = 160; 160 + 2,400 = 2,560. So, 8 × 320 = 2,560.

P64

Also available in print

Enrichment Master

Name _____ Enrichment 6-4

Roll Out the Fun

Find the missing factors and products to complete the number sentences. Then complete the sentences in the word problems.

Zippy Roller Coaster	Souvenirs
Height: 114 ft Length: 2,711 ft	Baseball cap—157 tickets Stuffed animal—318 tickets

1. Neil's family and Reena's family spent two days at the amusement park. On Fridays, family passes cost $119. On Saturdays, family passes cost $139.
   2 × 119 = 238 2 × 139 = 278
   In all, the two families spent $238 on Friday and $278 on Saturday.
2. The world's longest roller coaster is 3 times the length of the Zippy roller coaster. The world's tallest roller coaster is 4 times the height of the Zippy roller coaster.
   2,711 × 3 = 8,133 114 × 4 = 456
   The world's longest roller coaster is 8,133 feet long.
   The world's tallest roller coaster is 456 feet high.
3. Before leaving the amusement park, Reena went to the souvenir store to trade in her tickets. She chose 1 baseball cap for each of her 3 friends. Then she chose 2 stuffed animals for herself.
   3 × 157 = 471 2 × 318 = 636
   Reena used 471 tickets to get gifts for her friends and 636 tickets to get the stuffed animals.

E64

Also available in print

3×207 in vertical form.

- Have students regroup the ones blocks to show 2 tens and 1 one and place the 2 tens blocks above the empty space for the tens blocks. Guide them to record 2 tens and 1 one in the written problem.
- Have students multiply to find 3 rows of 0 tens blocks each and add the 2 regrouped tens. Guide them to record 2 in the tens place of the product.
- Complete by multiplying hundreds. Repeat for 3×270.

the 3-digit number by the 1-digit number. Compare and discuss your answers until you agree on the correct product.

Choose your own factors for multiplying a 3-digit number by a 1-digit number. Challenge a partner to give an estimate for the product of your factors.

Center Activity ★ 65

member multiplies the 4-digit number by the 1-digit number. Compare and discuss your answers until you agree on the correct product.

Choose your own factors for multiplying a 4-digit number by a 1-digit number. Challenge a partner to give an estimate for the product of your factors.

Center Activity ★★ 65

Partner Talk Listen for evidence that a student estimates to decide if an answer is reasonable. For example, a student might say, "7 times 800 equals 5,600, but our answer is less than 5,600, so we should check our work."

Leveled Homework

Reteaching Master

Name _____ Reteaching 6-5

Multiplying by 1-Digit Numbers

Follow the steps below to multiply by a 1-digit number.
Find the product of $3 \times 2{,}576$.

① Multiply the ones: 3×6 ones $= 18$ ones. Regroup as 1 ten and 8 ones.
② Multiply the tens: 3×7 tens $= 21$ tens. Add 1 regrouped ten: 22 tens. Regroup as 2 hundreds and 2 tens.
③ Multiply the hundreds: 3×5 hundreds $= 15$ hundreds. Add 2 regrouped hundreds: 17 hundreds. Regroup as 1 thousand and 7 hundreds.
④ Multiply the thousands: 3×2 thousands $= 6$ thousands. Add 1 regrouped thousand: 7 thousands.

1 2 1
2,576
× 3
7,728

Complete the table. The first row has been done for you.

Find the product.	Estimate the product.	Find the exact product.	Is it reasonable?
1. 7×66	$7 \times 70 = 490$	4 66 × 7 462	X Yes ___ No
2. 8×93	8 × 90 = 720	744	X Yes ___ No
3. 6×875	6 × 900 5,400	5,250	X Yes ___ No
4. 3×486	3 × 500 1,500	1,458	X Yes ___ No
5. $4 \times 7{,}821$	4 × 8,000 32,000	31,284	X Yes ___ No
6. $5 \times 3{,}111$	5 × 3,000 15,000	15,555	X Yes ___ No

7. **Number Sense** Margo found that $3 \times 741 = 2{,}223$. How could you use mental math to find the product of 6×741?
Sample answer: The factor 6 is 3×2. So, if I double the product of 3×741, or $2{,}223 \times 2$, I can find 6×741.

R65

Also available in print

Practice Master

Name _____ Practice 6-5

Multiplying by 1-Digit Numbers

Find each product. Estimate to check reasonableness.

1. 49 × 3 = 147
2. 87 × 5 = 435
3. 726 × 9 = 6,534
4. 518 × 4 = 2,072
5. $7 \times 3{,}258 =$ 22,806
6. $8 \times 1{,}096 =$ 8,768
7. $2 \times 4{,}615 =$ 9,230
8. $3 \times 2{,}934 =$ 8,802

9. It takes thousands of separate drawings to make a cartoon movie. Cartoons "move" because each drawing passes by so quickly. If 1,440 drawings go by in 1 minute, how many drawings are needed for a 7-minute cartoon?
10,080 drawings

10. The Plaza Cine-Plex has 6 movie theaters. Each theater has 452 seats. How many seats does the Plaza Cine-Plex have in all?
A 2,721 C 2,708
(B) 2,712 D 2,522

Use the price chart at the right to answer 11 through 14.

Power Tool	Price
Circular saw	$129
Belt sander	$247
Cordless drill	$206

11. How much more do 5 cordless drills cost than 4 belt sanders?
$42 more

12. **Number Sense** A carpenter has $1,000 to spend on power tools. Can she afford to buy 5 cordless drills? Explain.
No; $5 \times \$206 = \$1{,}030$, which is more than $1,000.

13. Jacob bought a new circular saw. Then he bought 8 different blades for it. Each blade cost $23. How much did Jacob spend in all?
$313

14. **Writing to Explain** Aaron has a woodworking shop. He wants to buy 2 of each of the tools shown in the table. What is the total cost? Explain.
$1,164; Sample answer: $129 + $247 + $206 = $582. Find $2 \times \$582 = \$1{,}164$.

P65

Also available in print

Enrichment Master

Name _____ Enrichment 6-5

Shaping Factors and Products

Each problem below uses shapes instead of numbers.
Each shape has a value of 0, 1, 2, 3, 4, or 5.
The shapes have the same value for all problems.
As you figure out the value of each shape, fill in the key at the right.
Then rewrite and solve each problem.

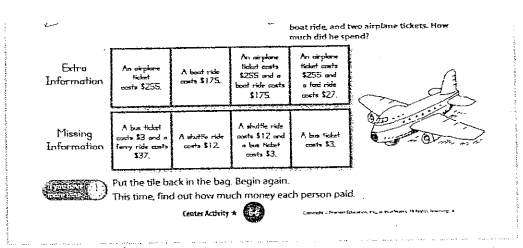
1. ♥◆ × ◆ = ⊗♥◆ — Rewrite and solve here. $25 \times 5 = 125$
2. ♥⊗◆ × ♥ = O♣♥ — Rewrite and solve here. $215 \times 2 = 430$
3. ◆♥◆ × ♣ = ⊗◆⊗◆ — Rewrite and solve here. $505 \times 3 = 1{,}515$
4. ⊗♥⊗♥ × ♥ = ♥O♥♥ — Rewrite and solve here. $1{,}210 \times 2 = 2{,}420$
5. ♥⊗♥◆ × ♥ = O♥⊗♥ — Rewrite and solve here. $2{,}105 \times 2 = 4{,}210$

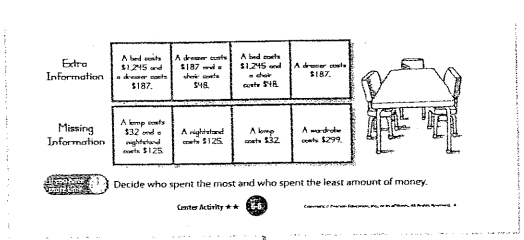
KEY
0 = ♥
1 = ⊗
2 = ♥
3 = ♣
4 = O
5 = ◆

E65

Also available in print

- Have students write another version of their problem that includes extra information.
- Have students write a third version of their problem that has missing information.
- Have students exchange all three versions of their problems with another group. Ask students to identify each version and have them solve the original problem.





ELL Report Back To check understanding, ask a student to repeat and complete this sentence: *Extra information is data that is* _____. [Sample answer: Not needed to solve a problem]

Leveled Homework

Reteaching Master

Name _____ Reteaching 6-6

Problem Solving: Missing or Extra Information

Some problems contain too much or too little information. If a problem has missing information, you cannot solve it. If a problem has extra information, you need to figure out what information is needed to solve the problem.

Step 1: Read and Understand

Ramon is 6 feet tall. The average male giraffe is 3 times as tall as Ramon and weighs about 1,800 pounds. How tall is the average male giraffe?

To solve this problem, you need to find how tall the average male giraffe is.

Step 2: Plan and Solve

Decide which information you need to solve the problem and what is extra information.

You need to know how tall Ramon is to find the height of the average male giraffe. You do not need the weight of the giraffe to answer the question. Multiply 3 by Ramon's height.

$3 \times 6 = 18$

The average male giraffe is about 18 feet tall.

Nora has a collection of 14 stuffed animals. Her collection includes bears, lions, cats, and penguins. Mindy has twice as many stuffed animals as Nora.

1. Do you have enough information to find out how many stuffed animals Mindy has? Explain.
   Yes; Nora has 14 stuffed animals and Mindy has twice as many.
2. What information did you not use to solve this problem?
   Nora's collection includes bears, lions, cats, and penguins.
3. How many stuffed animals does Mindy have?
   28 stuffed animals; $2 \times 14 = 28$

Also available in print

Practice Master

Name _____ Practice 6-6

Problem Solving: Missing or Extra Information

For 1 through 3, decide if each problem has extra information or not enough information. Tell any information that is not needed or that is missing. Solve if you have enough information.

1. Kendall pitches for his school's baseball team. Every game Kendall pitches, he gets about 5 strikeouts. Each game is about 2 hours. If Kendall pitches in 7 games during the season, how many strikeouts will he have?
   Extra information: Each game is 2 hours long. About 35 strikeouts.
2. Geometry Sandra is putting up a fence around her garden, which is in the shape of a square. Each foot of fencing costs $9. If each side of the fence will be 8 feet long, how many feet of fencing will Sandra need?
   Extra information: Each foot of fencing costs $9. She will need 32 ft of fencing.
3. Gretchen sings and plays guitar in a band after school. If Gretchen sings half of the songs the band knows, how many songs does the band know?
   Not enough information: I need to know how many songs Gretchen sings.
4. What do you need to know if you are trying to find the year George Washington was born and you know he died in 1799?
   A The current year
   (C) How old he was when he died
   B The exact date he died
   D There is not enough information
5. **Writing to Explain** If you wanted to write a word problem about how much money the fourth-grade class collected at their bake sale, what information would you need to include?
   How many items they sold and how much each item cost.

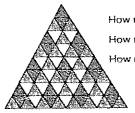
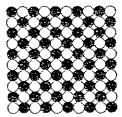
Also available in print

Enrichment Master

Name _____ Enrichment 6-6

How Many Are There?

Use addition, subtraction, or multiplication to find the number of each shape in the patterns below. Then explain how you found your answers.

1. 
   How many ◆ are in the pattern? 10
   How many △ are in the pattern? 26
   How many ▽ are in the pattern? 18
   How did you find the number of each shape in the pattern?
   Students' answers should include the use of addition, subtraction, or multiplication.
2. 
   How many ✧ are in the pattern? 81
   How many ● are in the pattern? 50
   How many ○ are in the pattern? 50
   How did you find the number of each shape in the pattern?
   Students' answers should include the use of addition, subtraction, or multiplication.

Also available in print

- Point to all 10 rows of the first column of tens. [100]
  [10 tens = 1 hundred]
  [100]
  [200]
- Point to the ones. [60]
- Point to the tens and then the ones. How many is 200 + 60? [260]
  What is 10 × 26? [260]

7 20 × 29

8 10 × 47

9 40 × 12

Choose two factors like these. Challenge a partner to show the partial products and the total product in an array by covering part of the drawing above with two sheets of paper.

Center Activity ★

Put the tiles back in the bag. Each time you pick a tile, show two different arrays for those partial products.

Center Activity ★★

ELL Partner Talk Listen for the word *groups*. For example, a student might say, "Thirty groups of 10 is 300, and thirty groups of 3 is 90, so we need an array with 30 groups of 10 and 3; the multiplication sentence is 30 × 13 = 390."

Leveled Homework

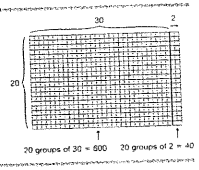
Reteaching Master

Name _____ Reteaching 7-1

Arrays and Multiplying 2-Digit Numbers by Multiples of 10

You can use an array to find the product of 20 × 32.

Think: 20 groups of 30 + 20 groups of 2
20 groups of 30 = 600
20 groups of 2 = 40
600 + 40 = 640
So, 20 × 32 = 640.

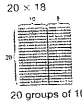


Find each product.

1. 10 × 12

10 groups of 10 = 100
10 groups of 2 = 20
100 + 20 = 120
So, 10 × 12 = 120

2. 20 × 18



20 groups of 10 = 200
20 groups of 8 = 160
200 + 160 = 360
So, 20 × 18 = 360

Use models to find each product. Check student drawings.

3. 40 × 16 640
4. 30 × 34 1,020

5. **Writing to Explain** Describe what an array that shows 70 × 35 would look like. How many rows would there be? How many items would be in each row?
Sample answer: There should be 70 rows in the array with 35 items in each row.

Also available in print

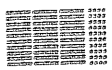
Practice Master

Name _____ Practice 7-1

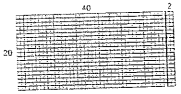
Arrays and Multiplying 2-Digit Numbers by Multiples of 10

Find each product.

1. 10 × 34 = 340



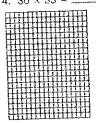
2. 20 × 42 = 840



Draw an array to find each product. Check students' drawings.

3. 40 × 24 = 960
4. 30 × 33 = 990

5. The array at the right can be used to find the product of two numbers. What are the two numbers?
20 and 18



6. It takes about 40 gallons of water to do a load of wash. How many gallons of water does it take to do 15 loads of wash?
A 400 B 415 C 600 D 900

7. **Writing to Explain** The art teacher has 30 boxes of crayons with 16 crayons in each box. She gives 10 of the boxes to students to use. Explain how to find how many crayons she has left.
320 crayons; Sample answer: She gave 10 boxes away, so she has 20 boxes left. 20 × 16 = 320 crayons

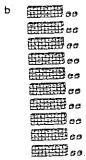
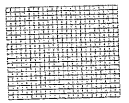
Also available in print

Enrichment Master

Name _____ Enrichment 7-1

Make a Match

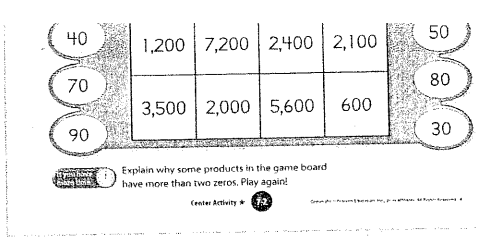
Write the letter of the expression or array in Column B next to the expression in Column A that has the same value.

Column A	Column B
1. 20 × 24 e	a 3,600 + 720
2. 20 × 38 c	b 
3. (20 × 10) + (20 × 7) f	c (20 × 30) + (20 × 8)
4. (10 × 30) + (10 × 2) b	d 600 + 30
5. 50 × 86 g	e 
6. 90 × 48 a	f 20 × 17
7. 30 × 21 d	g (50 × 80) + (50 × 6)

Also available in print

zeros in the original problem.

- Have students attach the number of zeros in the original problem to their solution for 5 × 8 in order to write the final answer.
- Ask students to explain why that type of problem may confuse some people.

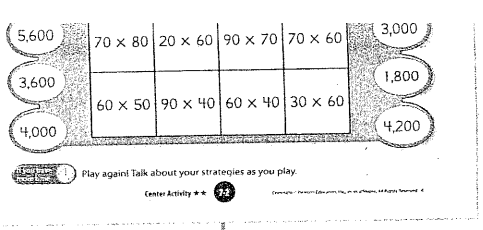


40	1,200	7,200	2,400	2,100
70	3,500	2,000	5,600	600
90				

50 80 30

Explain why some products in the game board have more than two zeros. Play again!

Center Activity *



5,600	70 × 80	20 × 60	90 × 70	70 × 60
3,600	60 × 50	90 × 40	60 × 40	30 × 60
4,000				

3,000 1,800 4,200

Play again! Talk about your strategies as you play.

Center Activity **

ELL Report Back To check understanding, ask a student to repeat and complete this sentence: *To get 1,800, I can multiply 20 × 90, or 30 × ____.* [60]

Leveled Homework

Reteaching Master

Name _____ Reteaching 7-2

Using Mental Math to Multiply 2-Digit Numbers

You can multiply with mental math by using basic facts and patterns.

Example A: 5 × 5 = 25
5 × 50 = 250

The product contains the number of zeros in each factor.

Example B: 5 × 6 = 30
5 × 60 = 300
50 × 60 = 3,000

When the product of a basic fact includes a zero, there is an extra zero in the product.

Multiply. Use mental math.

1. 20 × 20 = 400
2. 50 × 10 = 500
3. 40 × 40 = 1,600
4. 30 × 80 = 2,400
5. 60 × 60 = 3,600
6. 50 × 90 = 4,500
7. 70 × 30 = 2,100
8. 70 × 60 = 4,200
9. 40 × 50 = 2,000
10. Tell what numbers go in the blanks.
To find 90 × 30, multiply 9 and 3
Then write 2 zeros at the end.

Also available in print

Practice Master

Name _____ Practice 7-2

Using Mental Math to Multiply 2-Digit Numbers

Multiply. Use mental math.

1. 40 × 30 = 1,200
2. 50 × 90 = 4,500
3. 90 × 20 = 1,800
4. 60 × 50 = 3,000
5. 30 × 60 = 1,800
6. 40 × 60 = 2,400
7. 90 × 70 = 6,300
8. 70 × 40 = 2,800
9. 50 × 80 = 4,000
10. 30 × 80 = 2,400
11. 90 × 50 = 4,500
12. 50 × 40 = 2,000
13. How many zeros are in the product of 60 × 90? Explain how you know.
Sample answer: There are two zeros, one from 60 and one from 90.

Student A can type 40 words in one minute. Student B can type 30 words in one minute.

14. How many words can Student A type in 20 minutes? 800 words
15. How many words can Student B type in 30 minutes? 900 words
16. How many words can Student A type in 60 minutes?
A 240 (B) 2,400 C 24,000 D 240,000
17. Writing to Explain There are 30 players on each high school football team. Explain how you can find the total number of players if there are 40 teams.
Sample answer: Multiply the number of teams by the number of players on each team; 30 × 40 = 1,200.

Also available in print

Enrichment Master

Name _____ Enrichment 7-2

Birdhouses

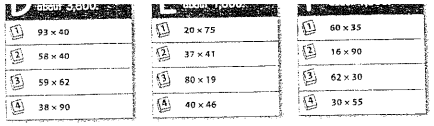
Cecilia owns a store that sells decorated birdhouses. The table at the right shows the number of birdhouses Cecilia sold each month. Write an expression to represent the following situations.

Birdhouses Sold	
January	417
February	379
March	341
April	262
May	m
June	89
July	76
August	94
September	s
October	296
November	439
December	611

1. How many birdhouses did Cecilia sell in May and June together?
m + 89
2. How many more birdhouses did Cecilia sell in October than in September?
296 − s
3. Cecilia charges $20 for each birdhouse. How much money did she make from selling birdhouses in August?
94 × $20
4. How many birdhouses did Cecilia sell in January and February combined?
417 + 379
5. How many more birdhouses did Cecilia sell in December than in November?
611 − 439
6. The company that makes the birdhouses charges $10 for each birdhouse. How much did Cecilia have to pay the company for the birdhouses she sold in July?
76 × $10

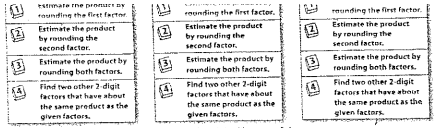
Also available in print

- Ask:



Make up a "Think Together" activity like one of these.
Challenge your classmates to think together to complete your activity.

Center Activity ★



Make up a "Think Together" activity like one of these.
Challenge your classmates to think together to complete your activity.

Center Activity ★★

Partner Talk Listen for language that shows a student understands how to round in order to estimate. For example, a student might say, "77 ends in 7. I can round 77 to 80. So 77 times 30 is about 80 times 30, which is 2,400."

Leveled Homework

Reteaching Master

Name _____ Reteaching 7-3

Using Rounding to Estimate

Use rounding to estimate 28 × 36.

Step 1
Round each number to the nearest 10.

- Look at the digit in the ones place. Since it is greater than 5, add 1 to the digit in the rounding place.
- Change the digit to the right of the rounding place to 0.

28 rounds to 30 and 36 rounds to 40.

28 × 36
↓ ↓
30 × 40

Step 2
Multiply 30 × 40.

30 × 40 = 1,200

So, 28 × 36 is about 1,200.

Use rounding to estimate each product.
Sample answers are given.

1. 31 × 12
31 rounds to 30.
12 rounds to 10.
30 × 10 = 300

2. 28 × 17
28 rounds to 30.
17 rounds to 20.
30 × 20 = 600

3. 46 × 13 = 500
4. 52 × 42 = 2,000
5. 42 × 18 = 800
6. 38 × 36 = 1,600
7. 48 × 59 = 3,000
8. 71 × 34 = 2,100
9. 62 × 82 = 4,800
10. 95 × 21 = 2,000

11. The school store has 25 packages of erasers. There are 12 erasers in each package. About how many erasers does the school store have for sale?
About 250 erasers

12. Chris estimated the product of 37 and 86 by multiplying 40 × 90. Tell how you know if this is greater than or less than the actual product.
It is greater than the actual product because 40 is greater than 37, and 90 is greater than 86.

Also available in print

Practice Master

Name _____ Practice 7-3

Using Rounding to Estimate

Use rounding to estimate each product.
Sample answers given.

1. 38 × 13 = 400
2. 41 × 18 = 800
3. 54 × 14 = 500
4. 44 × 22 = 800
5. 45 × 19 = 1,000
6. 34 × 48 = 1,500
7. 39 × 37 = 1,600
8. 25 × 81 = 2,400
9. 51 × 39 = 2,000
10. 46 × 29 = 1,500
11. 71 × 63 = 4,200
12. 82 × 54 = 4,000

13. A deep-sea fisherman went fishing 14 times last month. He caught 28 fish each time. About how many fish did he catch all together last month?
About 300 fish

14. Alligators lay between 20 and 50 eggs in a nest. A park ranger in Everglades National Park counted the number of eggs in 28 nests. On average, there were 40 eggs in each nest. About how many eggs did he count?
A 80 C 800
B 120 (D) 1,200

15. Writing to Explain Eric estimated 28 × 48 by finding 30 × 50. His estimate was 1,500, but he says the actual product will be greater than that amount. Is he correct? Explain how you know.
No; Sample answer: When Eric estimated, he rounded 28 to 30 and 48 to 50. The actual product will be less than the estimate because he rounded each number to a greater number.

Also available in print

Enrichment 7-3

Name _____

Where Do You Live?

Read the clues to find where each person lives in the apartment building. As you discover where each person lives, write the person's name in the apartment.

1. At Rosebud Terrace, there are 8 apartments. The names of the tenants are Bill, Madeline, Warrick, Pamela, Quincy, Salma, Todd, and Kendra.
   - Salma lives on the second floor.
   - Quincy lives directly above Warrick.
   - Bill lives next to Pamela.
   - Madeline lives to the left of Warrick and to the right of Kendra.
   - Todd lives to the left of Quincy.
   - Pamela lives right above Todd.

3rd floor	Bill	Pamela	
2nd floor	Salma	Todd	Quincy
1st floor	Kendra	Madeline	Warrick

2. Explain how you found each person's place in the apartment building.
Answers will vary.

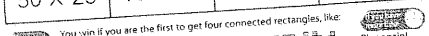
Also available in print

about multiplying by a multiple of 10 to solve 30 × 25.

3 × 25 = 75
30 × 25 = 750

- Repeat for multiplying 25 by 40, 90, 70, 60, 20, 80, and 50.

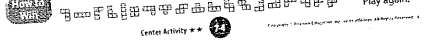
20 × 25	40 × 60	50 × 50	25 × 40
50 × 25	10 × 75	20 × 60	50 × 75

You win if you are the first to get four connected rectangles, like: 

Play again!

Center Activity ★ 7-4

750	1,250	1,000	1,500

You win if you are the first to get four connected rectangles, like: 

Play again!

Center Activity ★★ 7-4

ELL Report Back To check understanding, ask a student to repeat and complete this sentence: *Compatible numbers I can use to estimate the product for 69 × 11 are _____.* [Sample answers: 75 and 10; 70 and 11]

Leveled Homework

Reteaching Master

Name _____ Reteaching 7-4

Using Compatible Numbers to Estimate

Use compatible numbers to estimate 24 × 36.

Remember, compatible numbers are numbers that are easy to multiply.

Step 1
Pick compatible numbers.
- 24 is close to 25.
- 36 is close to 40.

24 × 36 → 25 × 40

Step 2
Multiply the compatible numbers.

25 × 40 = 1,000

So, 24 × 36 is about 1,000.

Estimate to find each product.
Sample answers are given.

1. 23 × 12
23 is close to 25.
12 is close to 10
25 × 10 = 250

2. 24 × 31
24 is close to 25.
31 is close to 30
25 × 30 = 750

3. 42 × 26
42 is close to 40.
26 is close to 25.
40 × 25 = 1,000

4. 63 × 59
63 is close to 60.
59 is close to 60.
60 × 60 = 3,600

5. 19 × 24 = 500
6. 51 × 17 = 1,000
7. 82 × 78 = 6,400
8. 24 × 61 = 1,500
9. 48 × 29 = 1,500
10. 53 × 39 = 2,000

11. There are 27 offices on each floor of a skyscraper. About how many offices are on 32 floors?
About 750 offices

12. Yoko estimates that the product of 48 and 53 is 250. Is that reasonable? Why or why not?
No; A reasonable estimate would be 50 × 50 = 2,500.

7-4

Also available in print

Practice Master

Name _____ Practice 7-4

Using Compatible Numbers to Estimate

Estimate to find each product.
Sample answers given.

1. 27 × 39 = 1,000
2. 27 × 22 = 500
3. 24 × 34 = 750
4. 78 × 21 = 1,600
5. 41 × 48 = 2,000
6. 23 × 28 = 750
7. 44 × 44 = 1,600
8. 72 × 38 = 2,800
9. 52 × 42 = 2,000
10. 67 × 18 = 1,400
11. 46 × 19 = 1,000
12. 34 × 48 = 1,500

13. **Number Sense** Marc estimates 67 × 36 by finding 70 × 40. Will his estimate be greater or less than the actual product? Explain how you know.
Marc's estimate will be greater than the actual product because he increased both of the factors before he multiplied to find the estimate.

14. A total of 42 people can ride a Ferris wheel at one time. What is the best way to estimate the number of people that ride the Ferris wheel in 26 rides?
A 40 × 20 ⓒ 40 × 25
B 30 × 30 D 40 × 50

15. **Writing to Explain** Describe how you can use compatible numbers to estimate 17 × 27.
Sample answer: First, I would change 17 to 20 and 27 to 25. Then I would multiply: 20 × 25 = 500.

7-4

Also available in print

Enrichment 7-4

Name _____

Family Vacation

The Bravo family is planning a family vacation.
- They plan to drive from New York City to Miami.
- They want to stop and spend some time in Washington, D.C.
- Mr. Bravo thinks they can drive about 62 miles an hour.

Distance between Cities

Cities	Miles
New York City to Washington, D.C.	237 miles
Washington, D.C. to Miami, Florida	1,043 miles

Sample answers are shown.

1. The family starts their trip on Monday morning at 9 A.M. They stop at noon for lunch. About how many miles have they traveled?
About 180 miles

2. Estimate how far the Bravo family is from Washington, D.C. at noon.
About 60 miles

3. After their one-hour lunch, the Bravo family continues driving to Washington, D.C. When they get there, they stop and do some sightseeing. At 5 P.M. they start driving again. At 7 P.M. they stop for dinner and check into a hotel. About how far did they travel past Washington, D.C.? About how far did the family drive on the first day of their trip?
About 120 miles; About 360 miles

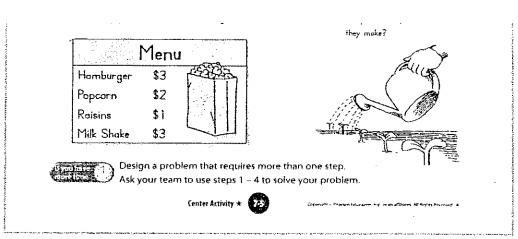
4. On the second day, the Bravo family drives from 7 A.M. until 5 P.M. During that time, they stop for a total of 2 hours. About how far did they drive on the second day of their trip?
About 480 miles

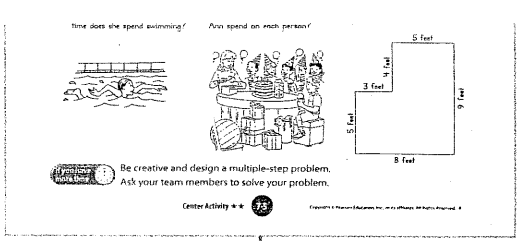
5. On the third day, the Bravo family must drive about 200 miles to reach Miami. They want to arrive in Miami by noon. If they leave at 10 A.M., will they arrive by noon? Explain.
No; Sample answer: To arrive by noon, they would have to drive 100 miles an hour. That is not reasonable.

Also available in print

much money does each have?]

- *What do you do next?* [Once we find the totals, subtract the smaller amount from the larger amount to see who has more money and how much more.]





Partner Talk Listen for language that describes a hidden question. For example a student might say, "There is no question that asks 'How much time did Lillian spend on her first two activities?', but we need the answer to that question."

Leveled Homework

Reteaching Master

Name _____ Reteaching 7-5

Problem Solving: Multiple-Step Problems

Chad and Amy cut lawns in their neighborhood to make money. They charge $20 per lawn. One weekend, Amy cut 4 lawns, and Chad cut 3 lawns. How much money did they earn all together?

Solution One

Hidden Question: How many lawns did they mow all together?

Chad cut 3 lawns, Amy cut 4 lawns.

3 + 4 = 7

They cut 7 lawns.

Question in the Problem: How much money did they earn all together?

7 lawns × $20 = $140

Chad and Amy earned $140.

Solution Two

Hidden Question 1: How much money did Chad get for cutting lawns?

3 × $20 = $60

Hidden Question 2: How much money did Amy get for cutting lawns?

4 × $20 = $80

Question in the Problem: How much money did they earn all together?

$60 + $80 = $140

Chad and Amy earned $140.

Write and answer the hidden question or questions. Then solve the problem. Write your answer in a complete sentence.

1. Keisha sold 8 ribbons and 6 pins at a craft fair. She sold the ribbons for $3 each and the pins for $2 each. How much money did Keisha earn?

   How much money did Keisha earn selling ribbons? 8 × $3 = $24 How much money did Keisha earn selling pins? 6 × $2 = $12 $24 + $12 = $36 Keisha made $36.

2. Ken uses 6 apples and 2 bananas to make a fruit salad. He puts twice as many oranges as bananas in the salad. How many pieces of fruit will Ken use to make 2 fruit salads?

   How many oranges does Ken use? 2 × 2 = 4 How many pieces of fruit does Ken use for 1 salad? 6 + 2 + 4 = 12; 2 × 12 = 24 Ken will use 24 pieces of fruit.

75

Also available in print

Practice Master

Name _____ Practice 7-5

Problem Solving: Multiple-Step Problems

County Fair Admission	
Adults	$5
Students	$3
Children	$2

For Exercise 1, write and answer the hidden question or questions. Then solve the problem. Write your answer in a complete sentence. Use the table at the right.

1. Mario and his family went to the county fair. They bought 2 adult passes and 3 children's passes. What was the total cost for the family?

   How much was the total of the adult passes? $10; How much was the total of the children's passes? $6; The total for Mario's family was $16.

2. A bus has 12 rows with 1 seat in each row on one side and 12 rows with 2 seats in each row on the other side. How many seats does the bus have in all?

   A 3 B 12 C 24 (D) 36

3. What hidden questions do you need to answer in Exercise 2?

   How many seats are on the first side?

   How many are on the second side?

4. **Writing to Explain** Write a problem about going to the laundromat that has a hidden question. A single load of laundry costs $2 and a double load costs $4. Explain how you solved your problem.

   Check students' problems.

75

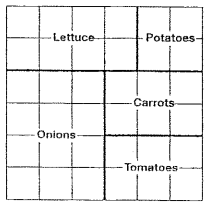
Also available in print

Enrichment Master

Name _____ Enrichment 7-5

Graphing Sales

Fran grows vegetables in her garden, and then she sells them at the market. A diagram of Fran's vegetable patch and a price list for her vegetables are shown below. Remember: lb stands for pound.



Fran's Vegetable Prices			
Carrots	2 lb	for	$1
Onions	3 lb	for	$2
Tomatoes	3 lb	for	$5
Potatoes	2 lb	for	$3
Lettuce	1 lb	for	$2

1. How many squares are in Fran's garden?

   36 squares

2. Fran collects 2 pounds of vegetables from each square of her garden. How many pounds of vegetables will she be able to collect from her entire garden?

   72 lb of vegetables

3. Fran makes $18 selling onions at the market. How many pounds of onions did she sell?

   27 lb of onions

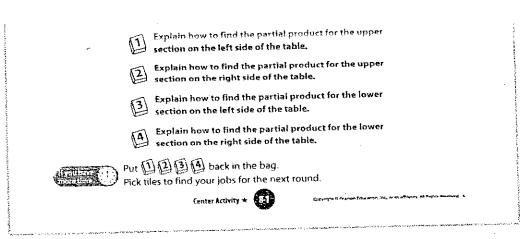
4. A customer buys 6 pounds of tomatoes, 4 pounds of potatoes, and 4 pounds of carrots. He pays with a $50 bill. How much change should he get back?

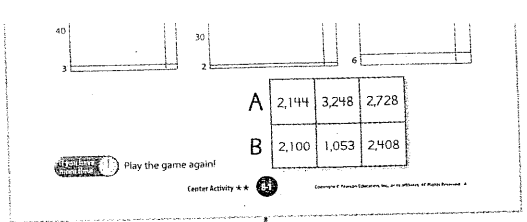
   $32 in change

75

Also available in print

- Have students use arrays to solve the problem: 27×25.
- Ask students to describe the similarities and differences between the two problems they solved.

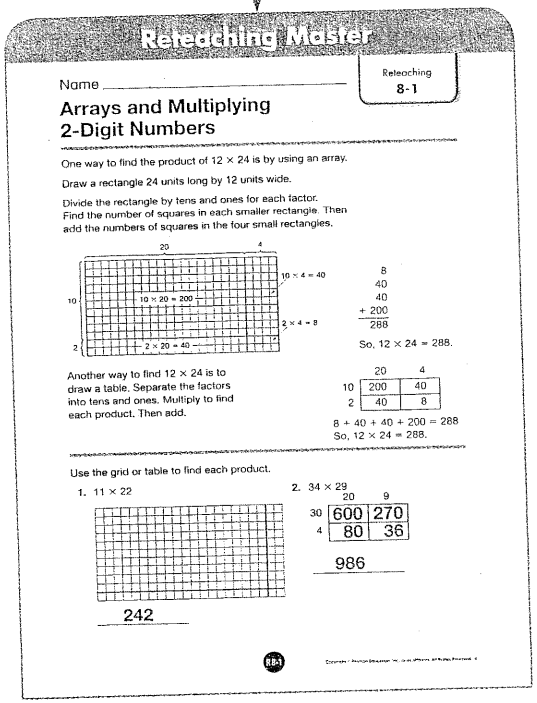




ELL Report Back To check understanding, ask a student to repeat and complete this sentence: *If the numbers on the left side of an array are 40 with 3 below it, and the numbers across the top of the same array are 50 and 6, the numbers you multiply to find the partial product in the upper left section of the array are _____.* [40 and 50]

Leveled Homework

Reteaching Master



Name _____ Reteaching 8-1

Arrays and Multiplying 2-Digit Numbers

One way to find the product of 12×24 is by using an array.

Draw a rectangle 24 units long by 12 units wide.

Divide the rectangle by tens and ones for each factor. Find the number of squares in each smaller rectangle. Then add the numbers of squares in the four small rectangles.

20 4
10 × 20 = 200
10 × 4 = 40
2 × 20 = 40
2 × 4 = 8
10
2

8
40
40
+ 200
288

So, $12 \times 24 = 288$.

Another way to find 12×24 is to draw a table. Separate the factors into tens and ones. Multiply to find each product. Then add.

	20	4
10	200	40
2	40	8

$8 + 40 + 40 + 200 = 288$
So, $12 \times 24 = 288$.

Use the grid or table to find each product.

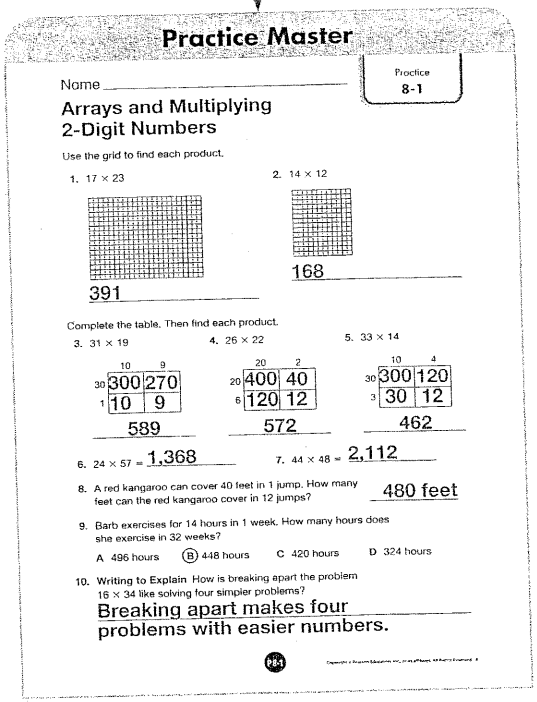
1. 11×22 — 242
2. 34×29 — 986

	20	9
30	600	270
4	80	36

8-1

Also available in print

Practice Master



Name _____ Practice 8-1

Arrays and Multiplying 2-Digit Numbers

Use the grid to find each product.

1. 17×23 — 391
2. 14×12 — 168

Complete the table. Then find each product.

3. 31×19 — 589

	10	9
30	300	270
1	10	9

4. 26×22 — 572

	20	2
20	400	40
6	120	12

5. 33×14 — 462

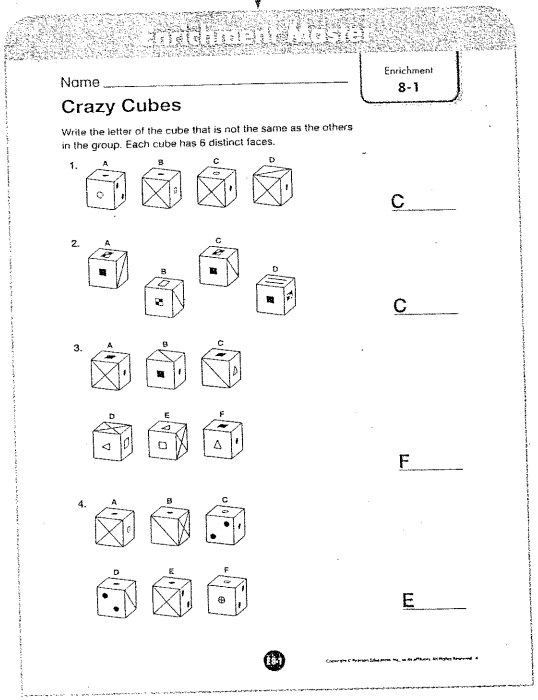
	10	4
30	300	120
3	30	12

6. $24 \times 57 =$ 1,368
7. $44 \times 48 =$ 2,112
8. A red kangaroo can cover 40 feet in 1 jump. How many feet can the red kangaroo cover in 12 jumps? 480 feet
9. Barb exercises for 14 hours in 1 week. How many hours does she exercise in 32 weeks?
   A 496 hours (B) 448 hours C 420 hours D 324 hours
10. Writing to Explain How is breaking apart the problem 16×34 like solving four simpler problems?
    Breaking apart makes four problems with easier numbers.

8-1

Also available in print

Enrichment Master



Name _____ Enrichment 8-1

Crazy Cubes

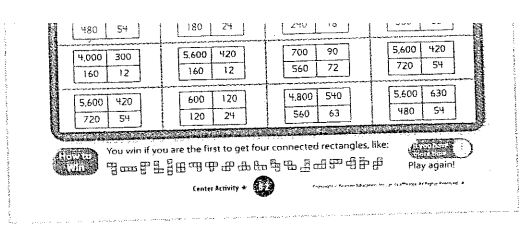
Write the letter of the cube that is not the same as the others in the group. Each cube has 6 distinct faces.

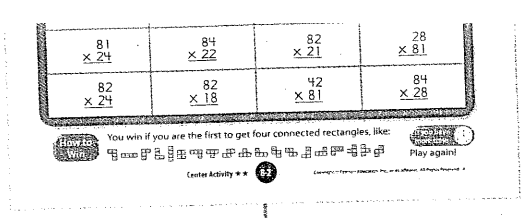
1. C
2. C
3. F
4. E

8-1

Also available in print

- Then have students write the problem in vertical form and record the partial products. Ask students to explain why the partial products have the same nonzero digit but different numbers of zeros.
- Finally have students add the partial products to find the product. [484]





Report Back To check understanding, ask a student to repeat and complete this sentence: When you multiply 2-digit numbers, you find _____ [partial products]

Leveled Homework

Reteaching Master

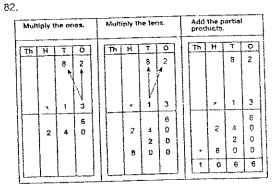
Reteaching 8-2

Name _____

Arrays and an Expanded Algorithm

You can use a place-value chart to organize the expanded algorithm to multiply.

Find 13 × 82.



So, 13 × 82 = 1,066.

Solve.

1. A large assortment box has 64 crayons in it. The art teacher buys 24 large assortment boxes of crayons at the start of the school year. How many crayons is this in all?
   1,536 crayons
2. A new building will have 64 two-bedroom apartments. Each apartment will need 18 electrical outlets. How many outlets will the electricians have to install in all 64 apartments?
   1,152 outlets
3. **Number Sense** Use the place-value chart at the right to multiply 45 × 37. Be sure to record each partial product in the correct column of the chart. Beside each partial product, record the numbers you multiplied. Then find the final product.

Th	H	T	O	What I Multiply
		3	7	
	×	4	5	
		3	5	5 × 7
	1	5	0	5 × 30
	2	8	0	40 × 7
+ 1	2	0	0	40 × 30
1	6	6	5	

R82

Also available in print

Practice Master

Practice 8-2

Name _____

Arrays and an Expanded Algorithm

Find each partial product. Then add to find the product.

1. 29 × 47
   630
   140
   360
   800
   + 1,363
2. 91 × 64
   4
   360
   60
   5,400
   + 5,824
3. 38 × 48
   56
   240
   3,200
   + 1,200
   1,824

Use the expanded algorithm to find the product.

4. 79 × 25 = 1,975
5. 82 × 14 = 1,148
6. 53 × 36 = 1,908
7. 44 × 31 = 1,364
8. 35 × 17 = 595
9. 53 × 28 = 1,484
10. 41 × 23 = 943
11. 60 × 16 = 960

12. Walter is a comic book artist. He usually draws 36 comic panels each day. How many comic panels can he draw in 2 weeks?
    A 72 B 180 C 404 D 504

13. **Writing to Explain** Uma used the expanded algorithm to solve 62 × 13. Her work is shown at the right. What did she do wrong? Explain what partial products Uma should have added to find the correct product.

```
  13
× 62
  6
  2
180
+ 50
248
```

She found 2 × 1, not 2 × 10; and 60 × 1, not 60 × 10; she should have added 6 + 20 + 180 + 600 = 806.

P82

Also available in print

Enrichment Master

Enrichment 8-2

Name _____

Slippery Digits

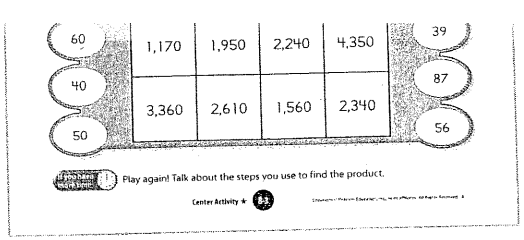
For each exercise, follow the directions to form a multiplication problem and find its product. There may be more than one solution. Sample answers are given.

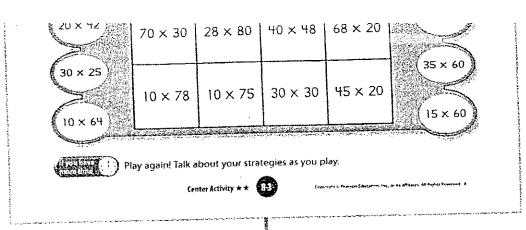
1. Use each of the digits 5, 6, 7, and 8 once. Fill in the boxes to make a product that is less than 4,000.
   58 × 67 = 3,886; 57 × 68 = 3,876
2. Use each of the digits 3, 4, 5, and 6 once. Fill in the boxes to make a product between 2,500 and 3,000.
   65 × 43 = 2,795; 63 × 45 = 2,835
3. Use each of the digits 2, 4, 6, and 8 once. Fill in the boxes to make a product that is greater than 2,150.
   Sample answer: 26 × 84 = 2,184
4. Use each of the digits 1, 3, 5, and 7 once. Fill in the boxes to make a product with 3 digits that are the same.
   37 × 15 = 555
5. Use each of the digits 2, 3, 5, and 8 once. Fill in the boxes to make a product that is less than 1,000 and has 0 ones.
   25 × 38 = 950; 35 × 28 = 980
6. Use any 4 different digits, once each. Fill in the boxes to make a product that has all even digits. HINT: Digits in the product may repeat.
   Sample answer: 42 × 53 = 2,226

E82

Also available in print

- Have students use the grid to find the product for the problem 30×23.
- As students work through the process, ask the following questions: *What will you multiply first? Next? What are those called? What should you do with the partial products?*
- Repeat this process with the problem 32×20. Allow students time to think it through before using the prompts.





ELL Report Back To check understanding, ask a student to repeat and complete this sentence: *When we multiply 20 by 24, the product has 48* _____. [tens]

Leveled Homework

Reteaching Master

Name _____ Reteaching 8-3

Multiplying 2-Digit Numbers by Multiples of 10

Find the product of 60 and 26.

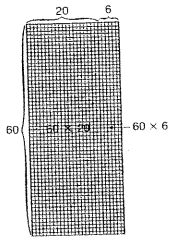
One way to find 60 × 26 is to use a grid.
Show 60 rows with 26 squares in each row.

Break apart 26 into tens and ones: 26 = 20 + 6.

Draw a vertical line on the grid to separate the grid into two sections. Label one section 60 × 20. Label the other section 60 × 6.

Multiply to find the partial products:
60 × 20 = 1,200 and 60 × 6 = 360.

Add the partial products:
1,200 + 360 = 1,560. So, 60 × 26 = 1,560.



A shorter way to find 60 × 26 is to multiply 6 tens × 26 by using the standard algorithm.

$$\begin{array}{r} 3 \\ 26 \\ \times\ 60 \\ \hline 1{,}560 \end{array}$$

Record 0 in the ones place of the product. Then find 6 tens × 26. The product is 156 tens or 1,560.

For Exercises 1 through 5, find each product.

1. 23 × 40 **920**
2. 16 × 30 **480**
3. 34 × 50 **1,700**
4. 60 × 47 **2,820**
5. 17 × 80 **1,360**

B-3

Also available in print

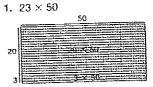
Practice Master

Name _____ Practice 8-3

Multiplying 2-Digit Numbers by Multiples of 10

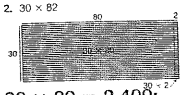
Use the grid to find the partial products. Then add to find the total.

1. 23 × 50



20 × 50 = 1,000; 3 × 50 = 150; 1,000 + 150; 1,150

2. 30 × 82



30 × 80 = 2,400; 30 × 2 = 60; 2,400 + 60; 2,460

Find each product by using the standard algorithm.

3. $\begin{array}{r} 61 \\ \times\ 30 \\ \hline 1{,}830 \end{array}$
4. $\begin{array}{r} 32 \\ \times\ 60 \\ \hline 1{,}920 \end{array}$
5. $\begin{array}{r} 75 \\ \times\ 70 \\ \hline 5{,}250 \end{array}$
6. $\begin{array}{r} 93 \\ \times\ 50 \\ \hline 4{,}650 \end{array}$
7. $\begin{array}{r} 66 \\ \times\ 20 \\ \hline 1{,}320 \end{array}$
8. $\begin{array}{r} 53 \\ \times\ 40 \\ \hline 2{,}120 \end{array}$
9. $\begin{array}{r} 86 \\ \times\ 80 \\ \hline 6{,}880 \end{array}$
10. $\begin{array}{r} 39 \\ \times\ 90 \\ \hline 3{,}510 \end{array}$

11. Which numbers are the partial products of 77 × 30?

A 210 and 700 (B) 2,100 and 210

C 511 and 2,100 D 4,900 and 210

12. **Writing to Explain** Explain how you can solve 40 × 16 by breaking apart the numbers.

Sample answer: To find the product of 40 × 16, you can add 40 × 10 to 40 × 6. 40 × 10 = 400 and 40 × 6 = 240. 400 + 240 = 640

P-3

Also available in print

Enrichment Master

Name _____ Enrichment 8-3

A Finished Product!

Find each partial product. Then, use numbers from the number sentences to complete the word sentences.

1. 30 × 20 = **600**
   30 × 4 = **120**
   30 × 24 = **720**

   Marie had **600** songs on her music player. She added **120** more songs. Now Marie has a total of **720** songs.

2. 60 × 80 = **4,800**
   60 × 3 = **180**
   60 × 83 = **4,980**

   A sporting goods manufacturer shipped out **4,800** bowling pins and **180** bowling balls to an alley. There were **4,980** items in all.

3. 90 × 70 = **6,300**
   90 × 4 = **360**
   90 × 74 = **6,660**

   The population of Desertvale was recorded at **6,300** in January. There were **360** more people added in a year. The following January, the population of Desertvale was **6,660**.

4. 80 × 80 = **6,400**
   80 × 5 = **400**
   80 × 85 = **6,800**

   Jed estimated that there were **6,400** jellybeans in a jar. When the jellybeans were finally counted, Jed found there were actually **400** more. In fact, there were **6,800** jellybeans in all.

5. 40 × 50 = **2,000**
   40 × 2 = **80**
   40 × 52 = **2,080**

   Now, create your own word sentences using the number sentences in Exercise 5.

   Check students' sentences.

E-3

Also available in print

- Have each student exchange problems with a classmate.
- Monitor progress while students solve their classmates' problems.
- Have students check to see that their problem was solved correctly and discuss discrepancies with their partner. Repeat this process with another partner.

312	1,196	910	1,092	1,586	650
1,352	572	1,404	338	832	1,690
676	1,456	546	1,716	936	390

Play again!

Center Activity ✦ 44

1,311	2,380	2,788	1,254	4,424	3,128
2,176	3,060	1,368	4,029	798	2,992
4,266	684	4,898	2,244	4,977	1,482

Play again!

Center Activity ✦✦ 44

ELL Partner Talk Listen for the word *regroup*. For example, a student might say, "6 times 4 is 24 so I'll *regroup* 24 as 2 tens and 4 ones."

Leveled Homework

Reteaching Master

Name _____ Reteaching 8-4

Multiplying 2-Digit by 2-Digit Numbers

There are 24 cars in a race. Each car has 13 workers in the pit area. How many pit-area workers are at the race in all?

Step 1	Step 2	Step 3
Multiply the ones. Regroup if necessary.	Multiply the tens. Regroup if necessary.	Add the partial products.
1 24 × 13 72 ← 3 × 24	24 × 13 72 240 ← 10 × 24	24 × 13 72 + 240 312
		24 × 13 = 312, so there are 312 pit-area workers at the race.

Find each product. Start multiplying the ones. Then multiply the tens.

1. 38 × 26 = 988
2. 67 × 27 = 1,809
3. 47 × 85 = 3,995
4. 88 × 32 = 2,816
5. 53 × 48 = 2,544
6. 18 × 77 = 1,386
7. 67 × 34 = 2,278
8. 91 × 46 = 4,186

9. **Reasonableness** Corina multiplied 62 × 22 and found a product of 1,042. Explain why Corina's answer is not reasonable.
Sample answer: Corina's answer is not reasonable because even when both factors are rounded down, her answer is still low; 60 × 20 = 1,200

R84

Also available in print

Practice Master

Name _____ Practice 8-4

Multiplying 2-Digit by 2-Digit Numbers

Find the product.

1. 54 × 17 = 918
2. 36 × 20 = 720
3. 53 × 12 = 636
4. 48 × 46 = 2,208
5. 37 × 83 = 3,071
6. 62 × 17 = 1,054
7. 91 × 49 = 4,459
8. 28 × 56 = 1,568
9. 70 × 39 = 2,730
10. 58 × 90 = 5,220
11. 97 × 42 = 4,074
12. 64 × 88 = 5,632

13. A carton holds 24 bottles of juice. How many juice bottles are in 15 cartons?
360 bottles of juice

14. How much do 21 bushels of sweet corn weigh?
735 lb

15. How much do 18 bushels of asparagus weigh?
432 lb

Vegetable	Weight of 1 Bushel
Asparagus	24 pounds
Beets	52 pounds
Carrots	50 pounds
Sweet corn	35 pounds

16. How much more do 13 bushels of beets weigh than 13 bushels of carrots?
26 lb

17. Which of the following is a reasonable answer for 92 × 98?
A 1,800 (B) 9,000 C 18,000 D 90,000

18. **Writing to Explain** Garth is multiplying 29 × 16. He found the partial product 174 after multiplying the ones and 290 after multiplying the tens. Explain how Garth can find the final product.
Sample answer: Garth can add 174 and 290 to get 464.

R82

Also available in print

Enrichment Master

Name _____ Enrichment 8-4

Food for Thought

You work at a pet shop. One of your jobs is to feed all the animals. Answer the questions below using the chart at the right.

First thing in the morning you feed the fish. The 12 fish tanks have a total of 26 large fish. You can choose between two kinds of pellets.

Daily Feeding Chart

Fish	11 super pellets each or 32 mini pellets each
Puppies	16 oz dry food each or 12 oz wet food each

1. Which kind of pellets do you choose? Estimate the number of pellets you need. Explain your method.
Food choice and estimates vary. For super pellets estimate 26 × 11 by finding 26 × 10 which is 260. For mini pellets estimate 26 × 32 by finding 30 × 30 which is 900.
2. What is the exact number of pellets?
286 super pellets; 832 mini pellets

You feed the puppies next. There are 10 cages of large-breed puppies. Each cage can hold 3 puppies, but 2 of the cages only have 2 puppies each. You need to decide which food to give the puppies.

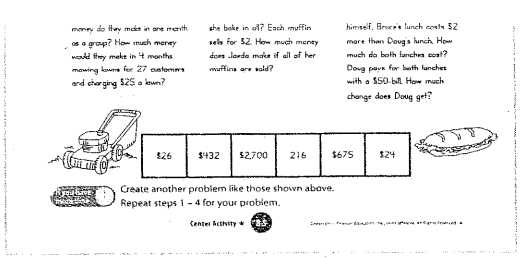
3. What kind of puppy food do you choose? Estimate the amount of puppy food you need. Explain your method.
Food choice and estimates vary. For dry food, estimate 28 × 16 by finding 30 × 20, which is 600. For wet food, estimate 28 × 12 by finding 30 × 10, which is 300.
4. What is the exact amount of puppy food?
448 ounces of dry food; 336 ounces of wet food

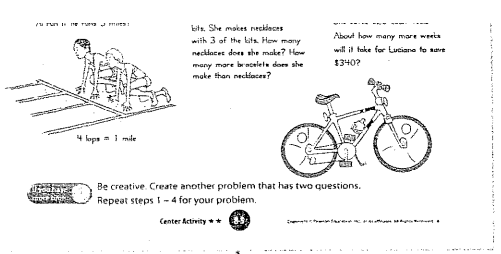
E84

Also available in print

to the model. Have students find the sum.

- Have students write a story where 3 and 7 are factors, and then 8 needs to be added to the product. Have students explain their stories to a partner to double-check their reasoning.





Partner Talk Listen for an explanation of what needs to be found. Be sure that a student describes what the team has to find for both the problem and the related problem.

Leveled Homework

Reteaching Master

Name _____ Reteaching 8-5

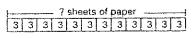
Problem Solving: Two-Question Problems

Read and Understand

Problem 1: Gina gave 3 sheets of paper to each of the 12 students in her class. How many sheets of paper did she give out?

Problem 2: Each sheet of paper had 3 paper clips attached to it. How many paper clips did she give out?

Answer Problem 1 first.

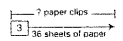


12 students × 3 sheets of paper = 36 sheets of paper

Gina gave out 36 sheets of paper.

Plan and Solve

Use the answer from Problem 1 to solve Problem 2.



36 sheets of paper × 3 paper clips = 108 paper clips

Gina gave out 108 paper clips.

Solve. Use the answer from Problem 1 to solve Problem 2.

1. **Problem 1:** April made 16 baskets and glued 5 flowers on each one. How many flowers did she use in all?

   Problem 2: Each flower April used had 8 petals. How many petals were there on all the flowers she used?

   80 flowers; 640 petals

2. **Problem 1:** Jorge washed cars for four hours on Saturday. In the first hour, he washed 4 cars. In the second hour, he washed 7 cars. In the third hour, he washed 9 cars. How many cars did he wash in the first three hours?

   Problem 2: Jorge washed the same number of cars in the fourth hour as he did in the first three hours combined. How many cars did he wash in all in four hours?

   20 cars; 20 cars + 20 cars = 40 cars

Also available in print

Practice Master

Name _____ Practice 8-5

Problem Solving: Two-Question Problems

For 1 and 2, use the answer from the first problem to solve the second problem.

1. **Problem 1:** Francisco reads 75 pages every week for a summer reading program. If there are about 4 weeks in a month, then how many pages can Francisco read in a month?

   Francisco can read 300 pages in a month.

   Problem 2: How many pages will Francisco read in the 3 months of summer?

   Francisco will read 900 pages over the summer.

2. **Problem 1:** Mr. Dunn drives a 12-mile round trip 3 times a week to the dog park. How many miles does he drive?

   Mr. Dunn drives 36 miles to the dog park.

   Problem 2: Mr. Dunn estimates he uses 4 gallons of gas over the course of the week to and from the dog park. How many miles per gallon does his car get?

   Mr. Dunn's car gets 9 miles per gallon.

3. **Problem 1:** A company buys printer paper in a box that contains 8 packages. Which expression shows how many packages of paper are in 12 boxes?

   A $8 + 8$ B $8 - 2$ C $8 + 12$ (D) 8×12

   Problem 2: Each package of paper costs 3 dollars. Explain how to find how much 12 boxes of printer paper will cost.

   First find 8 × 12 which tells how many packages are in 12 boxes. Then multiply that product by the cost ($3) of one package; 8 × 12 = 96 and $3 × 96 = $288.

Also available in print

Enrichment Master

Name _____ Enrichment 8-5

Something's Missing

Find the missing number that makes the number sentence true.

1. 2,323 − 232 = 2,091
2. 10 × 10 = 100
3. 123 + 45 = 168
4. 730 + 73 = 803
5. 834 − 9 = 825
6. (4 × 6) + 3 = 8
7. 8 + 282 = 290
8. 759 × 0 = 0
9. (12 ÷ 4) × 9 = 27
10. (16 − 5) + 9 = 20
11. (3 × 4) ÷ 2 = 6
12. 690 × 1 = 690
13. (45 ÷ 9) ÷ 1 = 6
14. 999 − 999 = 0
15. Use each number in the box once to complete the number sentences.

    9 ÷ 3 = 3
    2 × 3 = 6
    8 − 5 = 3
    2 × 5 = 10

9	2
5	
	6

Write some number sentences with missing operation signs. Give them to a partner to solve.

16. Check students' work.
17. _____
18. _____
19. _____
20. _____

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